CLAIMS

1. (Currently Amended) A method for facilitating detection of an object~~ in a point cloud of three-dimensional imaging data representing an area of study where the object potentially is obscured by intervening obstacles~~, the method comprising:

collecting a point cloud of three-dimensional imaging data representing an area of study where an object potentially is obscured by intervening obstacles;

processing the imaging data to identify elements in the point cloud having substantially common attributes signifying that the identified elements correspond to a feature in the area of study that is at least partially obscured by the intervening obstacles;

generating at least one isosurface associating the elements having substantially common attributes; and

generating a reversed orientation visualization model from the imaging data for a region of interest, thereby exposing the feature.

2. (Original) The method of Claim 1, further comprising gathering the point cloud of three-dimensional imaging data of the area of study from an aerial position.

3. (Original) The method of Claim 2, wherein the three-dimensional imaging data of the scene is gathered using ladar.

4. (Original) The method of Claim 1, wherein imaging data is processed using a population function computed on a sampling mesh by a Fast Binning Method (FBM).

5. (Original) The method of Claim 4, wherein the isosurface of the population function is computed using a marching cubes method.

6. (Original) The method of Claim 1, further comprising allowing an operator to manually select a region of interest from the area of study for generating the reversed orientation visualization model.

7. (Original) The method of Claim 6, wherein a nonreversed orientation visualization model is a top-down view of the region of interest and the reversed orientation visualization model is an up from underground visualization of the region of interest.

8. (Previously Presented) The method of Claim 1, wherein the reversed orientation visualization model exposes areas of total ground occlusion.

9. (Currently Amended) A method for detecting a possible presence in an area of study of a ground-level object ~~from an aerial position where an intervening obstacle impedes a line of sight between the aerial position and the ground-level object~~, the method comprising:

gathering a point cloud of three-dimensional imaging data representing the area of study from <u>an</u> aerial position <u>where an intervening obstacle impedes a line of sight between the aerial position and a ground-level object;</u>

processing the imaging data to identify elements in the point cloud having substantially common attributes signifying that the identified elements correspond to a feature in the area of study <u>that is at least partially obscured by the intervening obstacle</u>;

generating at least one isosurface associating the elements having substantially common attributes;

selecting a region of interest from the area of study; and

generating <u>from the imaging data gathered from the aerial position</u> an up from underground oriented visualization model of the region of interest <u>exposing the feature in the area of study that is at least partially obscured by the intervening obstacle in the line of sight between the aerial position and the ground-level object</u>.

10. (Original) The method of Claim 9, wherein the three-dimensional imaging data of the area of study is gathered using ladar.

11. (Original) The method of Claim 9, wherein imaging data is processed using a population function computed on a sampling mesh by a Fast Binning Method (FBM).

12. (Original) The method of Claim 11, wherein the isosurface of the population function is computed using a marching cubes method.

13. (Original) The method of Claim 9, further comprising allowing an operator to manually select the region of interest from the area of study.

14. (Original) The method of Claim 9, wherein the up from underground oriented visualization model exposes areas of total ground occlusion.

15. (Currently Amended) A computer-readable medium having stored thereon instructions for facilitating detection of an object ~~in a point cloud of three-dimensional imaging data representing an area of study where the object potentially is obscured by intervening obstacles~~, the computer-readable medium comprising:

first computer program code means for receiving a point cloud of three-dimensional imaging data representing an area of study where an object potentially is obscured by intervening obstacles;

second computer program code means for processing the imaging data to identify elements in the point cloud having substantially common attributes signifying that the identified elements correspond to a feature in the area of study that is at least partially obscured by the intervening obstacles;

third ~~second~~ computer program code means for generating an least one isosurface associating the elements having substantially common attributes; and

fourth ~~third~~ computer program code means for generating a reversed orientation visualization model from the imaging data for a region of interest, thereby exposing the feature.

16. (Currently Amended) The computer-readable medium of Claim 15, further comprising fifth ~~fourth~~ computer program code means for gathering the point cloud of three-dimensional imaging data of the area of study from an aerial position.

17. (Original) The computer-readable medium of Claim 16, wherein the three-dimensional imaging data of the scene is gathered using ladar.

18. (Original) The computer-readable medium of Claim 15, wherein imaging data is processed using a population function computed on a sampling mesh by a Fast Binning Method (FBM).

19. (Original) The computer-readable medium of Claim 18, wherein the isosurface of the population function is computed using a marching cubes method.

20. (Currently Amended) The computer-readable medium of Claim 15, further comprising <u>sixth</u> ~~fifth~~ computer program code means for allowing an operator to manually select a region of interest from the area of study for generating the reversed orientation visualization model.

21. (Original) The computer-readable medium of Claim 20, wherein a non-reversed orientation visualization model is a top-down view of the region of interest and the reversed orientation visualization model is an up from underground visualization of the region of interest.

22. (Original) The computer-readable medium of Claim 21, wherein the reversed orientation visualization model exposes areas of total ground occlusion.

23. (Currently Amended) A computer-readable medium having stored thereon instructions for detecting a possible presence in an area of study of a ground-level object ~~from an aerial position where an intervening obstacle impedes a line of sight between the aerial position and the ground-level object~~, the computer-readable medium comprising:

first computer program code means for gathering a point cloud of three-dimensional imaging data of the representing the area of study from an ~~the~~ aerial position where an intervening obstacle impedes a line of sight between the aerial position and a ground-level object;

second computer program code means for processing the imaging data to identify elements in the point cloud having substantially common attributes signifying that the identified elements correspond to a feature in the area of study that is at least partially obscured by the intervening obstacle;

third computer program code means for generating at least one isosurface associating the elements having substantially common attributes;

fourth computer program code means for selecting a region of interest from the area of study; and

fifth computer program code means for generating from the imaging data gathered from the aerial position an up from underground oriented visualization model of the region of interest exposing the feature in the area of study that is at least partially obscured by the intervening obstacle in the line of sight between the aerial position and the ground-level object.

24. (Original) The computer-readable medium of Claim 23, wherein the three-dimensional imaging data of the area of study is gathered using ladar.

25. (Original) The computer-readable medium of Claim 23, wherein imaging data is processed using a population function computed on a sampling mesh by a Fast Binning Method (FBM).

26. (Original) The computer-readable medium of Claim 23, wherein the isosurface of the population function is computed using a marching cubes method.

27. (Original) The computer-readable medium of Claim 23, further comprising sixth computer program code means allowing an operator to manually select the region of interest from the area of study.

28. (Original) The computer-readable medium of Claim 23, wherein the up from underground oriented visualization model exposes areas of total ground occlusion.

29. (Currently Amended) A system for facilitating detection of an object ~~in a point cloud of three-dimensional imaging data representing an area of study where the object potentially is obscured by intervening obstacles~~, the system comprising:

a data gathering apparatus configured to collect a point cloud of three-dimensional imaging data representing an area of study where an object potentially is obscured by intervening obstacles;

an image processor configured to process the imaging data to identify elements in the point cloud having substantially common attributes signifying that the identified elements correspond to a feature in the area of study that is at least partially obscured by the intervening obstacles;

an isosurface generator configured to generate an least one isosurface associating the elements having substantially common attributes; and

a reversed orientation visualization model generator configured to generate a reversed orientation visualization model from the imaging data for a region of interest, thereby exposing the feature.

30. (Original) The system of Claim 29, further comprising a data gathering apparatus configured to gather the point cloud of three-dimensional imaging data of the area of study from an aerial position.

31. (Original) The system of Claim 30, wherein the data gathering apparatus is a ladar apparatus.

32. (Original) The system of Claim 29, wherein the image processor processes the imaging data using a population function computed on a sampling mesh by a Fast Binning Method (FBM).

33. (Original) The system of Claim 32, wherein the isosurface generator is configured to compute the isosurface using a marching cubes method.

34. (Original) The system of Claim 29, further comprising a region of interest selector configured to allow an operator to manually select a region of interest.

35. (Original) The system of Claim 34, wherein the non-reversed orientation visualization model is a top-down view of the region of interest and the reversed orientation visualization model is an up from underground visualization of the region of interest.

36. (Original) The system of Claim 35, wherein the reversed orientation visualization model exposes areas of total ground occlusion.

37. (Currently Amended) A system for detecting a possible presence in an area of study of a ground-level object~~ from an aerial position where an intervening obstacle impedes a line of sight between the aerial position and the ground-level object~~, the system comprising:

a data gathering apparatus configured to gather the point cloud of three-dimensional imaging data of the area of study from the aerial position where an intervening obstacle impedes a line of sight between the aerial position and a ground-level object;

an image processor configured to process the imaging data to identify elements in the point cloud having substantially common attributes signifying that the identified elements correspond to a feature in the area of study that is at least partially obscured by the intervening obstacle;

an isosurface generator configured to generate at least one isosurface associating the elements having substantially common attributes;

a region of interest selector configured to allow an operator to select a region of interest from the area of study; and

an up from underground oriented visualization model generator configured to generate from the imaging data gathered from the aerial position an up from underground visualization model for the region of interest exposing the feature in the area of study that is at least partially obscured by the intervening obstacle in the line of sight between the aerial position and the ground-level object.

38. (Original) The system of Claim 37, wherein the data gathering apparatus is a ladar apparatus.

39. (Original) The system of Claim 37, wherein the image processor processes the imaging data using a population function computed on a sampling mesh by a Fast Binning Method (FBM).

40. (Original) The system of Claim 39, wherein the isosurface generator is configured to compute the isosurface using a marching cubes method.

41. (Original) The system of Claim 37, wherein the up from underground visualization model exposes areas of total ground occlusion.